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ABSTRACT

A sample of graduates from the terminal grades of upper secondary school in Sweden were studied in 1970 and 1971 to determine the relationship between choice of postsecondary studies and the students' previous level of achievement, social background, interests, attitudes to school, and education. For males, it was found that a considerable portion of the social selection established in the transition from upper secondary school to university or college was related to differences in the type of secondary schooling (i.e., differences in terms of theoretically and vocationally oriented education). Findings also indicated that the upper secondary students applying for teacher training colleges in the early 1970s displayed much the same qualities as those who had gone on the humanities and science faculties. Their grades were roughly the same, and judging by the social composition of the two groups, a considerable equalization had occured compared with the situation 10 years earlier. There was also a trend toward greater equalization in law and economic studies. The persistent social selection for engineering (as compared with studies in science at the university) was also clearly demonstrated. That is, social background was the variable that had the highest correlation with choice of studies. The students' upper secondary program and grade point average showed a consistently high association with their postsecondary educational choices. The proportion of technology line students entering higher education was very small. Those students who went to college were more ambitious than others and did more spare-time reading, but these two variables did not appear to have had much bearing on the decision to attend college if allowance was also made for the other variables. (SW)

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CONCLUDED PROJECT

TITLE OF PROJECT: POST-SECONDARY EDUCATION AND BACKGROUND

CONDUCTED AT: Institute of International Education
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BACKGROUND AND PURPOSE

Two samples of upper secondary school leavers who graduated in 1970 and 1971 respectively were followed up between 1972 and 1975. The main purpose of this project was to study higher education recruitment. Analyses were made of the association between choice of post-secondary studies and the students' previous level of achievement, social background, interests, attitudes to school and education etc. Four reports were published during this period by the Institute of International Education in the University of Stockholm. To begin with the project was aimed at describing the composition and characteristics of groups with various post-secondary educational choices (including the decision not to engage in any studies at all). During the concluding phase of the

project its focus changed. Greater attention was paid to selection and stratification mechanisms in the education system, both at upper secondary and post-secondary level. In a Ph D thesis entitled *Choice of Post-Secondary Studies in a Stratified System of Education* (Mählck, 1980) the problems studied in the course of the project are viewed in a more global perspective. The thesis also presents results from new processings to which the project data have been subjected in recent years on the basis of a revised conceptual model.

SAMPLE

The follow-up survey in the project employed two samples of students from the terminal grades of upper secondary school who took part in the IEA survey in 1970 and 1971. The IEA data used by the project concerned essentially the students' home background, attitudes, interests and achievement. The sample of the project comprises 2 300 students who left grade 3 of upper secondary school in the spring term of 1970. Information on the students' post-secondary choices of study are based on records from the Central Bureau of Statistics (SCB). The project follow-up covers enrolments at universities and colleges for five terms. The dependent variable in all analyses has been based on the students' first-time enrolment for some form of higher education. The upper secondary students of the sample who were not found in the SCB records have been treated in the analyses as *non-ongoers* or *not participating* in higher education. The sample comprised about 7 per cent of the entire annual cohort. About half of all upper secondary schools in the country were represented. The sample was representative of the annual cohort (students awarded upper secondary school leaving certificates in the spring term 1970) with regard to sex, social background and line of studies.

INVESTIGATION METHODS

The decision whether or not to go on to higher education was the first choice to be studied. In a second phase, it was decided to conduct three separate analyses based on the following choices:

- Studies in law, economics and business administration (with open admission) as opposed to studies in humanities and social sciences at the university. (This analysis covered students leaving the Humanities, Social Sciences and Economics lines of upper secondary school.)

- Studies at Institutes of Technology (engineering) as opposed to studies in science at the university. (These only included students from the Science and Technology lines of upper secondary school.)

- Studies at teacher training colleges as opposed to studies in the humanities, social sciences or sciences at the university (studies with unrestricted intake).

Special attention was paid to the students' previous choices and achievements, which had caused very considerable differences in the real choices open to various groups of students. Above all, these differences are concerned with whether the upper secondary school graduates

- had taken mathematical and natural science subjects,

- had completed an academic or vocationally oriented program (Humanities, Social Sciences and Science lines as opposed to the Economics and Technology lines),

- had a Grade Point Average that qualified for admission to post-secondary programs with restricted intake.

The data material was divided according to these three criteria for special sub-group analyses. In addition a new variable *(upper secondary school program)* was created to elucidate the importance of the type of upper secondary schooling completed for subsequent educational choices.

The choice of variables to "explain" the choices of our own upper secondary students (Mählck & Mattsson, 1975) was based on some of the models presented in the Wisconsin study and summarized in Sewell & Hauser (1975). The revised analytical model used in the re-analysis of the project data were based above all on the model of vocational choice developed by Blau et al (1956). Härnqvist (1978) has elaborated this model and adapted it to situations of educational choice analogous to those studied in our project.

The Blau model defines choice as the result of a process in which subjective factors are confronted with various objective conditions which have a limiting effect on the options actually open to the individual. The two key concepts determining the individual's choice are, on the one hand, his *preferences* for a particular type of education or occupation and, on the other hand, his *expectancy* of being able to realize those preferences, for example by possessing the requisite competence. Whether a person is actually admitted to the education in question or obtains the job he applies for will of

course also depend on the action of the recruiting organization, i e on the educational institution or the employer. The behaviour of the latter, in turn, is presumed to be the result of a compromise between their preference for candidates with a certain type of qualifications, interests etc and a judgment of the types of people who can be expected to apply.

According to the model it is above all the aspirations and interests of the individual which have a bearing on his educational or occupational preferences. On the basis of the project data available, two variables were constructed which were presumed to express the aspiration, interest or consumption aspect, namely *ambition* and *reading for pleasure*. The individual's expectancy hinges above all on his estimate of his own ability to meet with the requirements of the various educational and occupational alternatives envisaged *(self-assessed ability)*. *Grade Point Average* was used in certain of the analyses as a substitute for self-assessed ability, in the absence of a direct measurement. The complete model contained the following variables:

Socio-economic background

Parental encouragement	Two items: *Do your parents usually ask how you are getting on at school?* and *Do your parents encourage you to read in your spare time?*
Upper secondary school program	Academic (Humanities, Social Sciences and Science) or vocationally oriented lines (Economics and Technology)
Grade Point Average	
Ambition	Two items: *Important to me to do well in school* and *Wish to get as much education as I can get*
Reading for pleasure	One item: *No hours per week devoted to reading for pleasure*

This model was used to analyse the choice to continue to higher education or not. The upper secondary school program variable could not be included in the analysis of the choice of type of post-secondary studies, the number of cases being too small in some sub-groups.

The statistical analysis used cross tables and the Multiple Classification Analysis (MCA) programme. The latter employed the eta coefficient to describe the simple association between variables in the model and the criterion (enrolment in a particular type of education), while the standardized regression coefficient, beta, was used to study the relative importance of each variable, i e its ability to "explain" the variance of the criterion variable, allowance having been made for the influence of other variables.

FINDINGS

The following summary of results focuses on the predictive power of each of the three groups of variables in the analytical model as regards explaining educational choices in the sample, these three groups being (i) the student's home background, (ii) previous choices and achievements leading to the current situations of choice, (iii) aspirations and interests.

Previous research has convincingly demonstrated considerable differences between the sexes in choice of education and occupation. For this reason, but also in view of the methodological problems which the use of MCA would entail, sex was not included as a variable in our analytical model. Accordingly, separate analyses were performed for men and women.

A comparison of the undivided upper secondary school group and the university and college group in terms of social composition revealed that the highest social stratum had further improved its relative position, the intermediate group had maintained their share and the number of students of working class origin had further declined. This was also reflected in our findings from the analysis of the correlation between social background and enrolment in higher education. As expected, the above mentioned association, particularly among female graduates, was lowered when allowance was made for the simultaneous effect on enrolment of Grade Point Average. Perhaps the most interesting result was obtained when not only average grades but also upper secondary program (academic versus semi-vocational lines) were kept constant. The previously established association between social background and participation in higher education disappeared completely for male graduates.

In the analysis of the choice of study alternatives in higher education, the results obtained confirmed the trend towards greater equalization in law, economic studies with unrestricted intake and teacher training (SCB, 1976; Svensson, 1979). The persistent social selection for engineering (as compared with studies in science at the university) was also clearly demonstrated by our analyses. One reason for social background being the variable which displayed

the highest correlation with choice of studies may be that studies in engineering take a comparatively long time to complete, and are relatively demanding, and that this offsets the more vocational focus of these studies compared with certain study alternatives at the science faculty. Moreover, we were concerned here with the low mark sections of Institutes of technology, and their employment prospects are probably less favourable than those of the other sections.

The effect of *parental encouragement* on educational choice was very limited. Its influence seems to have been of an indirect nature.

The students' previous educational choices (upper secondary program) and achievements in upper secondary school (Grade Point Average) showed a consistently high association with their post-secondary educational choices. It is not surprising that average grades should have been the most influential of all factors affecting educational choice where the undivided upper secondary school group is concerned. Practically all programs in higher education, including the most prestigious, were accessible to certain students with particularly high grades. Others were only in a position to choose between faculties with open admission. The number of students excluded from restricted intake studies because of insufficient grades was estimated at two-thirds of the sample. A special analysis was made of educational choices within the group with low or average grades (Grade Point Average below 3.5). The results showed that in this group as well, grades did a great deal to influence decisions about going on to higher education, even though the range of variation in the variable had been considerably reduced by our division of the upper secondary school group. This can be taken as a clear indication of the auto-selection which took place on the basis of upper secondary school achievements.

There were very substantial differences in the transition rates of upper secondary students from academic and semi-vocational lines. The proportion of Technology line students going on to higher education was very small indeed. This was why the upper secondary school program variable had a much heavier effect on the educational choices of technology and science students in upper secondary school than on those of the humanities, social sciences and econom-

ics group.

Those students who went on to higher education were more ambitious than others and did more spare-time reading. But the two attitude variables - ambition and reading for pleasure - did not prove to have had much bearing on the decision to go on to higher education (in the undivided upper secondary school group) if allowance was also made for differences in the students' social background, their previous educational choices and their achievements. On the other hand the analysis of the choices of certain subgroups, e g male students who had completed the Humanities or Social Sciences line, revealed that ambition and reading for pleasure had been very important explanatory factors.

Concerning the type of higher education chosen, the pattern of results was the same in all three comparisons. Those who had chosen the least vocationally oriented alternative, i e humanities or social science studies instead of law or economics, studies at a science faculty instead of an institute of technology, and studies in humanities and social sciences instead of teacher training were also the students who during their upper secondary school career had spent most time reading books and periodicals for pleasure. Moreover, the tendency was that, the more ambitious the students were, the more likely they were to be found in the more prestigious programs such as law, economics or engineering.

CONCLUDING REMARKS

This project has involved a study of selection for higher education in the early 1970s. Many of the problems elucidated are probably also relevant to recruitment in the new higher education system. The reforms of the 1960s and 1970s have augmented the number of routes leading to higher education. The promotion in 1965 of the former specialized upper secondary schools, commercial and technical ones, to the status of full members of the new upper secondary school with its five constituent lines of studies, was among the reforms aimed at democratizing access to higher education. What results have been achieved in this respect?

A comparison of the transition rates of the five long-term lines of upper secondary school ten or twelve years after the implementation of the reform shows that the gap between the Technology line and the traditional, theoretically oriented lines - Humanities, Social Science and Science- is very considerable, while the Economics line has come very close to catching up with the latter. Turning then to examine the educational choices of students going on to higher education, we find that students from both the Economics and Technology lines con-

fined themselves to a small number of educational routes.

The difficulties involved in raising the proportion of university and college students coming from these lines are partly connected with what has been called *the transfer-terminal dilemma* (OECD, 1977): studies in these lines have the dual purpose of preparing students both for further studies at post-secondary level and for direct entry into employment. Probably another underlying cause is that the students accepted for the Economics and Technology lines in grade 1 of upper secondary school had lower grades than other upper secondary school students in the theoretically oriented lines. What is perhaps more interesting is that these differences tended to persist throughout the students' upper secondary school career. This could be taken to imply that these new categories of potential university and college students did not receive the support and stimulus they would have needed from school in order to become and, above all, to feel as qualified as other upper secondary students to participate in higher education. To this one might object that many of these students only intended to acquire a vocationally oriented education. Or from a slightly different perspective, it is important for upper secondary education to have a structure ensuring that the labour market will obtain the intermediate level engineers and economists it needs. We may then ask whether the students recruited, say, for the Technology line and leaving the education system four years later, must be so extensively drawn from the economically and educationally less privileged strata of society. Where male students are concerned, the analyses which have been carried out in the course of the project have shown that a considerable portion of the social selection established in the transition from upper secondary school to university or college has been referable to differences in the upper secondary schooling completed, i e differences in terms of theoretically and vocationally oriented education.

The new higher education system includes a number of study programs which used not to be considered as higher education. In the terms of reference of the U 68 Commission it was stated that a study program was to be termed post-secondary if it was or could constitute an alternative to another post-secondary study program, i e education for which completion of three years' upper secondary schooling was the admission requirement. It is of course important to investi-

gate the extent to which this broader definition of higher education is matched by the students' actual choices. Within the project we have been able in one case to analyse student composition and the factors channelling preferences into a "new" higher education program as opposed to traditional university and college studies. Our findings indicated that the upper secondary students applying for teacher training colleges in the early 1970s displayed much the same qualities as those who had gone on to humanities and science faculties. Their grades were roughly the same, and judging by the social composition of the two groups, a considerable equalization had taken place compared with the situation ten years earlier. The only difference between the two groups concerned reading for pleasure; university students had higher figures in this respect.

The phenomena reflected by the differences observed between various student categories with regard to the reading for pleasure variable have been discussed in various connections in a Ph D thesis (Mählck, 1980). Are we faced here with basic differences of intellectual orientation or, conversely, with differences of pragmatism? A further analysis of the ambition and reading for pleasure variables against the background of various Swedish and international studies pointed to a need for "purer" variables which would more efficiently capture the underlying differences of attitude involved here, particularly as regards the distinction between investment in and consumption of education. It would also be desirable in this connection to take into account any differences between various higher education study routes with regard to the level of difficulty of the studies concerned (the risk of failure) and the work load involved.

Lars Mählck

1980-09-25

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